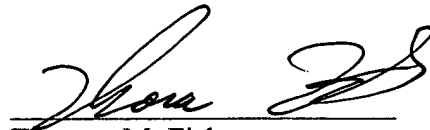


Express Mail No. EV 263880173 US  
15-CT-6001  
PATENT

Favorable action is respectfully solicited. Applicants believe that no fee is due for this preliminary amendment, however if any fee is due, please charge the fee due to Deposit Account No. 01-2384.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Thomas M. Fisher', is written over a horizontal line.

Thomas M. Fisher  
Registration No. 47,564  
ARMSTRONG TEASDALE LLP  
One Metropolitan Square, Suite 2600  
St. Louis, Missouri 63102-2740  
(314) 621-5070



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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Hoffman :  
Serial No.: 10/064,511 : Art Unit: 2882  
Filed: July 23, 2002 : Examiner:  
For: METHODS AND APPARATUS :  
FOR PERFORMING A :  
COMPUTED TOMOGRAPHY :  
SCAN :

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FEB 12 2003  
TECHNOLOGY CENTER 2800

SUBMISSION OF MARKED UP CLAIMS

Hon. Commissioner for Patents  
Washington, D.C. 20231

Submitted below are marked up claims in accordance with 37 C.F.R. 1.121(c)(1)(ii),  
wherein deletions are [bracketed] and additions are underlined.

IN THE CLAIMS

1. (once amended) A [uted] computed tomographic (CT) imaging system for performing  
a CT scan, said CT system comprising:

a detector array comprising a plurality of detector cells;

a processor operationally coupled to said detector array, said processor configured to:

receive first data regarding a first x-ray spectral range from a first detector cell;

receive second data regarding a second x-ray spectral range different from the first x-ray  
spectral range from a second detector cell different from the first detector cell; and

determine spectral information from the first data and the second data.

2. (once amended) [2.]A CT system in accordance with Claim 1 wherein said CT system further comprises an x-ray tube, said tube configured to produce a spatially variant x-ray energy distribution in a Z direction.

3. (once amended) [3.]A CT system in accordance with Claim 1 wherein said CT system further comprises an x-ray tube on a rotating gantry, said x-ray tube configured to emit x-rays at a first x-ray spectral range and a second x-ray spectral range different from the first x-ray spectral range during the rotation of said gantry during a single scan.

4. (once amended) [4.]A CT system in accordance with Claim 1 wherein said CT system further comprises:

an x-ray source positioned to emit x-rays toward said detector array; and

at least one x-ray energy filter positioned between said source and said detector array.

5. (once amended) [5.]A CT system in accordance with Claim 4 wherein said x-ray energy filter is positioned between said x-ray source and an object being imaged.

6. (once amended) [6.]A CT system in accordance with Claim 4 wherein said x-ray energy filter is positioned in an x-ray collimator between said x-ray source and an object being imaged.

7. (once amended) [7.]A CT system in accordance with Claim 4 wherein said x-ray energy filter is positioned between an object being imaged and said detector array.

8. (once amended) [8.]A CT system in accordance with Claim 4 wherein said x-ray energy filter comprises a plurality of discrete filter elements separated by intervening air paths and oriented in a Z direction.

9. (once amended) [9.]A CT system in accordance with Claim 4 wherein said x-ray energy filter comprises a variable filter.

10. (once amended) [10.]A CT system in accordance with Claim 8 wherein said discrete filter elements each have substantially the same x-ray absorption property.

11. (once amended) [11.]A CT system in accordance with Claim 8 wherein one of said discrete filter elements has a first x-ray absorption property and one of said discrete filter elements has a second x-ray absorption property different from the first.

12. (once amended) [12.]A CT system in accordance with Claim 4 wherein said x-ray energy filter comprises at least one of a stepped filter, a sloped filter, a plurality of K edge filters, and a set of paired K edge filters in a Z-axis direction.

13. (once amended) [13.]A CT system in accordance with Claim 1 further comprising an x-ray source outputting a single x-ray spectrum wherein said first detector cell detects a different x-ray subspectrum than said second detector cell.

14. (once amended) [14.Athod]A method for scanning an object, said scanning comprises scanning an object by at least one of:

scanning the object while varying a peak kiloelectronvolt to an x-ray tube;

scanning the object with a filter such that a plurality of x-ray spectra are received by a detector array; and

scanning the object such that elements of a detector array discriminate between a plurality of x-ray spectra and generate signals based on the x-ray spectra.

15. (once amended) [15.Athod]A method for determining the presence of an analyte in an object with a computed tomographic (CT) imaging system, said method comprising:

receiving first data regarding a first x-ray spectral range from a first detector cell;

receiving second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell; and

determining spectral information from the first data and the second data.

16. (once amended) [16.Aputed]A computed tomographic (CT) imaging system for performing a CT scan, said CT system comprising:

a detector array comprising a plurality of detector cells;

an x-ray source positioned to emit x-rays toward said detector array; and

a processor operationally coupled to said detector array, said processor configured to:

receive first data regarding a first x-ray spectral range from a first detector cell;

receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell; and

determine spectral information from the first data and the second data.

17. (once amended) [17.]A CT system in accordance with Claim 16 wherein said x-ray source comprises an x-ray tube configured to produce a spatially variant x-ray energy distribution in a Z direction.

18. (once amended) [18.]A CT system in accordance with Claim 16 further comprising a rotating gantry, said x-ray source configured to emit x-rays at a first x-ray spectral range and a second x-ray spectral range different from the first x-ray spectral range during the rotation of said gantry during a single scan.

19. (once amended) [19.]A CT system in accordance with Claim 16 further comprising a plurality of x-ray energy filter elements separated by intervening air paths and oriented in a Z direction.

20. (once amended) [20.]A CT system in accordance with Claim 19 wherein at least one said x-ray energy filter is positioned between said x-ray source and an object being imaged.

21. (once amended) [21.]A CT system in accordance with Claim 19 wherein at least one said x-ray energy filter is positioned between said detector and an object being imaged.

22. (once amended) [22.]A CT system in accordance with Claim 19 wherein said discrete filter elements each have substantially the same x-ray absorption property.

23. (once amended) [23.]A CT system in accordance with Claim 19 wherein one of said discrete filter elements has a first x-ray absorption property and one of said discrete filter elements has a second x-ray absorption property different from the first.

Respectfully Submitted,



Thomas M. Fisher  
Registration No. 47,564  
ARMSTRONG TEASDALE LLP  
One Metropolitan Square, Suite 2600  
St. Louis, Missouri 63102-2740  
(314) 621-5070